

## REMARKS

I. Status of the Application

Claims 1-5 are pending in this application. Claims 6-23 have been withdrawn from consideration as allegedly being drawn to a non-elected invention and there allegedly being no allowable generic or linking claim. With regard to claims 1-5, in the November 6, 2002 office action, the Examiner:

1. Rejected claim 4 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,513,059 to Atkins (hereinafter "Atkins"); and
2. Rejected claims 1-3 and 5 under 35 U.S.C. § 103(a) as allegedly being obvious over Atkins in view of U.S. Patent No. 6,266,223 to Curry (hereinafter "Curry").

In this response, applicants have amended claims 1, 2 and 4 to correspond more accurately to the claimed subject matter. Applicants have further added new claims 24-38. Applicants respectfully traverse the prior art rejections of claims 1-5 and request reconsideration of the pending claims in view of the foregoing amendments and the following remarks.

II. Claim 1 is Patentable

In the November 5, 2002 office action, the Examiner rejected claim 1 as allegedly being obvious over Atkins in view of Curry. As will be discussed below in further detail, neither Atkins nor Curry, either alone or in combination, teach, show or suggest each an every element of claim 1.

A. The Invention of Claim 1

Claim 1, as amended, is directed to a surge protection apparatus connected between an AC electrical utility power line source and a load. The apparatus includes a voltage input, an inductor and a protective barrier. The voltage input is coupled to the AC electrical utility power line. The AC electrical utility power line is a power line having a nominal AC voltage of at least about 120 volts. The inductor is coupled between the voltage input and the load. The protective barrier is interposed between the inductor and the load, the protective barrier configured to physically isolate the inductor from the load.

Thus, as amended, the surge protection apparatus is configured specifically for use with an AC power line.

B. Atkins and Curry

Atkins and Curry are both directed to surge protection equipment for telephonic equipment. Both devices include some protection circuitry connected between the tip and ring lines from the switching office and the tip and ring lines of the subscriber equipment. Both Atkins and Curry teach the use of a positive coefficient temperature device and an inductor on each of the tip and ring lines.

C. Neither Atkins Nor Curry Teach a Voltage Input as Claimed

Neither Atkins nor Curry, alone or in combination, disclose a “voltage input

coupled to the AC electrical utility power line, the AC electrical utility power line having a nominal AC voltage of at least about 120 volts”, as called for in claim 1. As discussed above, both Atkins and Curry teach devices that are employed on telephone subscriber loops. It is well known that telephone subscriber loops employ DC bias voltages that are well below 120 volts, typically 48 volts DC.

Accordingly, the combination of Atkins and Curry as proposed by the Examiner does not arrive at the invention. Moreover, neither Atkins nor Curry suggest or imply that the protection circuits taught therein are applicable to AC power lines such as electrical mains power lines.

Because the combination of Atkins and Curry neither discloses nor suggests each and every element of claim 1, it is respectfully submitted that the obviousness rejection of claim 1 is in error and should be withdrawn.

### III. Claim 2

Claim 2 also stands rejected as allegedly being obvious over Atkins in view of Curry. Claim 2, like claim 1, has been amended to recite “a voltage input coupled to the AC electrical utility power line, the AC electrical utility power line having a nominal AC voltage of at least about 120 volts”. As discussed above in connection with claim 1, neither Atkins nor Curry, either alone or in combination, teach or suggest such a voltage input.

Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the obviousness rejection of claim 2 is in error and

should be withdrawn.

IV. Claim 3

Claim 3 also stands rejected as allegedly being obvious over Atkins in view of Curry.

Claim 3 depends from and incorporates all of the limitations of claim 2. Accordingly, for at least the same reasons as those set forth above in connection with claim 2, it is respectfully submitted that the rejection of claim 3 should be withdrawn.

V. Claim 4

Claim 4 stands rejected as allegedly being anticipated by Atkins. As will be discussed in further detail below, Atkins fails to teach, show or suggest each and every element of claim 4.

A. The Present Invention

Claim 4 is directed to a surge protection apparatus that includes an inductor, a *separate* resistor, and a polymeric positive coefficient temperature device (PPTC) coupled in series between the voltage input and the load. In this amendment, applicants have recited a series connected resistor is that not merely an inherent resistance of the inductor. The application as originally filed disclosed an exemplary embodiment where a separate resistor was used in addition to the inherent resistance of the inductor coil. (See, for example, specification at p.8, line 15 to p.9, line 7).

B. Atkins Fails to Disclose a Separate Resistor

As discussed above, Atkins discloses a protection circuit for use in the tip and ring lines of a telephone subscriber loop. One element of the protection circuit is a series circuit that includes a PPTC and an inductor. (See Atkins, Figs. 1 and 4). Atkins fails to disclose any series protection circuit that includes a separate resistor.

More specifically, in the November 6, 2002 office action, the Examiner alleged that Fig. 2 of Atkins showed a surge protection circuit including a PPTC, and inductor and a resistor connected in series. Moreover, the Examiner alleged that the resistor was element 8 of Fig. 2. (See November 6, 2002 office action at p.2). Element 8, however, represents an inherent or parasitic property of the inductor 4 of the Atkins circuit, and not an actual separate resistor device.

To this end, Fig. 2 in Atkins is described as “a diagram of the circuit of Fig. 1 with some of the parasitic values shown”. (Atkins at col. 3, lines 27-28). The circuit of Fig. 1 does not include a resistor 8. Accordingly, resistor 8 of Fig. 2 merely constitutes a “parasitic” value, not a separate element. Moreover, Atkins contains the following detailed description of the Fig. 2:

FIG. 2 shows the circuit of FIG. 1 and indicates the most important *stray* quantities, namely the stray capacitance 7 of the voltage clamping device 3 and the resistance 8 of the inductor 4.

(*Id.* at col. 3, lines 47-50).

Accordingly, Atkins does not teach the use of a separate resistor that is series-connected to the inductor and PPTC, but rather merely illustrates some of the inherent or parasitic values of the real circuit elements. It further appears that such values are undesirable. In any event, it is noted that the inherent resistance values of the inductor are not

typically sufficient to provide the same level of current limiting as that provided by the combination of the inherent resistance of the inductor *and* a separate resistor.

Because Atkins fails to teach “an inductor, a separate resistor, and a PPTC coupled in series between the voltage input and the load” as called for in claim 4, Atkins does not disclose each and every element of claim 4. As a consequence, it is respectfully submitted that the anticipation rejection of claim 4 is in error and should be withdrawn.

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VI. Claim 5

Claim 5 also stands rejected as allegedly being obvious over Atkins in view of Curry. Claim 5 depends from and incorporates all of the limitations of claim 4. As discussed above, Atkins fails to disclose a “separate resistor” as called for in claim 4. Moreover, Curry is equally deficient with respect to the claimed separate resistor. Accordingly, neither Atkins nor Curry, either alone or in combination, teach, show or suggest each and every element of either of claims 4 or 5. It is therefore respectfully submitted that the rejection of claim 5 should be withdrawn.

VII. New Claims 24-29 are Patentable

New claims 24-29 all depend from and incorporate all of the limitations of claim 4. As discussed above in connection with claim 5, neither Atkins nor Curry, either alone or in combination, teach, show or suggest each and every element of claim 4. It is therefore respectfully submitted that new dependent claims 24-29 are allowable over the prior art.

VIII. New Claims 30 and 31 are Patentable

New claims 30 and 31 depend from, respectively, claims 1 and 2. As discussed above, claims 1 and 2 are both allowable over the prior art. It is therefore respectfully submitted that new dependent claims 30 and 31 are allowable over the prior art.

IX. New Claims 32 and 33

New claim 32 is directed to a surge protection apparatus that includes a voltage input, an inductor and a protective barrier. The protective barrier is interposed between the inductor and the load and is configured to physically isolate the inductor from the load. In accordance with claim 32, the protective barrier includes a protective sleeve that receives the inductor. The present application discusses use of a protective sleeve at page 10, lines 1-4.

None of the prior art discloses a protective barrier in the form of a protective sleeve. The only protective barrier in the prior art cited by the Examiner is the housing cover 212 of Curry, which is not a sleeve.

Because the prior art does not disclose or suggest each and every element of claim 32, it is respectfully submitted that claim 32 is allowable over the prior art.

Claim 33 depends from and incorporates all of the limitations of claim 32. Accordingly, for at least the same reasons as those set forth above in connection with claim 32, it is respectfully submitted that claim 33 is allowable over the prior art.

X. New Claims 34-36

New claim 34 is directed to a surge protection apparatus that includes a voltage input. The apparatus also includes an inductor and a polymeric positive coefficient temperature device (PPTC) coupled in series between the voltage input and the load.

In accordance with claim 34, the inductor is interposed between the PPTC and the voltage input. As noted in the exemplary embodiment in the specification, placing the inductor between the PPTC and the voltage input "is used to prevent short duration current spikes from appearing at the PPTC". (Specification at p.8, lines 22-23).

None of the prior art teach surge protection circuit in which an inductor is series connected between the PPTC and the voltage input. In particular, both Curry and Atkins teach the placement of the PPTC between the voltage input and the inductor. In such position, the inductor cannot prevent short duration current spikes from appearing at the PPTC.

Because the prior art does not disclose or suggest each and every element of claim 34, it is respectfully submitted that claim 34 is allowable over the prior art.

Claims 35-36 depend from and incorporate all of the limitations of claim 34. Accordingly, for at least the same reasons as those set forth above in connection with claim 34, it is respectfully submitted that claims 35-36 are allowable over the prior art.

XI. New Claims 37-38

New claim 37 is directed to a surge protection apparatus that includes a voltage input. The surge protection apparatus further includes an inductor, a resistor of at least



10 ohms, and a PPTC coupled in series between the voltage input and the load.

New claim 37 is similar to claim 4 as originally filed, except that claim 37 further recites that the resistor has at least 10 ohms of resistance. As discussed in the specification, the resistor is used for current limiting and thus are about 10 ohms or higher. (See specification at p.8, lines 15-21).

As discussed above, claim 4 stands rejected as allegedly anticipated by Atkins.

However, as discussed above, the only resistor Atkins discloses is a parasitic resistance. That parasitic resistance is disclosed as having a value of 5.6 ohms. Thus, Atkins does not disclose a resistor having a resistance of at least 10 ohms.

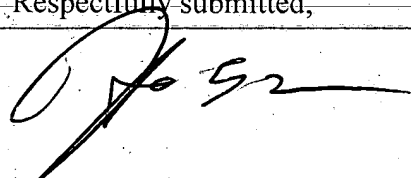
Because the prior art does not disclose or suggest each and every element of claim 37, it is respectfully submitted that claim 37 is allowable over the prior art.

Claim 38 depends from and incorporates all of the limitations of claim 37. Accordingly, for at least the same reasons as those set forth above in connection with claim 37, it is respectfully submitted that claim 38 is allowable over the prior art.

XII. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'H. C. Moore', with a long horizontal flourish extending to the right.

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Appendix Showing Marked-Up Versions of the AmendmentsAmended Claims 1, 2 and 4

1. (amended) A surge protection apparatus connected between an AC electrical utility

power line ~~source~~ and a load, comprising:

a voltage input coupled to the AC electrical utility power line, the AC electrical utility power line having a nominal AC voltage of at least about 120 volts;

an inductor coupled between the voltage input and the load; and

a protective barrier interposed between the inductor and the load, the protective barrier configured to physically isolate the inductor from the load.

2. (amended) A surge protection apparatus connected between an AC electrical utility

power line ~~source~~ and a load, comprising:

a voltage input coupled to the AC electrical utility power line, the AC electrical utility power line having a nominal AC voltage of at least about 120 volts;

an polymeric positive temperature coefficient device (PPTC) coupled between the voltage input and the load; and

a protective barrier interposed between the PPTC and the load, the protective barrier configured to physically isolate the PPTC from the load.

4. (amended) A surge protection apparatus connected between an electrical power line and a load, comprising:

a voltage input coupled to the electrical power line;

an inductor, a separate resistor, and a polymeric positive coefficient

temperature device (PPTC) coupled in series between the voltage input and the load.

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